

What is claimed is:

1. A system for use in a mobile communications network having a plurality of cell sites, comprising:

- an interface adapted to communicate with a cell site over a network;
- and
- a controller adapted to transmit and receive data through the interface over the network according to a packet-switched protocol.

2. The system of claim 1, wherein the packet-switched protocol comprises a connectionless, packet-based protocol. ¹¹²

3. The system of claim 1, wherein the packet-switched protocol comprises an Internet Protocol.

4. The system of claim 1, wherein the interface and controller comprise elements of a General Packet Radio Service system.

5. The system of claim 4, wherein the network comprises a Gb network.

6. The system of claim 5, further comprising a serving General Packet Radio Service support node comprising the interface and the controller.

7. A node for use in a mobile communications network having a system controller, the node comprising:

- one or more radio transceivers adapted to communicate with mobile stations; and
- a module coupled to the one or more radio transceivers and adapted to communicate with the system controller according to a packet-switched protocol.

8. The node of claim 7, wherein the packet-switched protocol comprises an Internet Protocol.

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$\frac{1}{\sqrt{2}} \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix}$

1 9. The node of claim 7, wherein the module is adapted to communicate
2 data packets, each packet containing addresses identifying the node and the system
3 controller.

1 10. The node of claim 9, wherein each packet contains Internet Protocol
2 addresses.

1 ~~18~~ (11) A system for use in a mobile communications network having cell
2 sites, comprising:
3 a network layer to manage communications of packets over a packet-
4 switched network; ~~EBSSP~~
5 a transport layer to manage connections over the packet-switched
6 network; and ~~UDP~~
7 a network services layer to transport data units through the transport
8 and network layers, each data unit containing a destination address of a network
9 element on the packet-switched network. ~~NSP~~

1 12. The system of claim 11, wherein the network layer comprises an
2 Internet Protocol layer. ~~EBSSP~~

1 13. The system of claim 11, wherein the transport layer comprises a User
2 Datagram Protocol layer. ~~UDP~~

1 14. The system of claim 11, wherein the network services layer comprises
2 a General Packet Radio Service network services layer. ~~NSP~~

1 ~~18~~ (15) A method of communicating in a mobile communications system
2 having a cell site, a system controller, and an interface between the cell site and the
3 system controller, the method comprising:
4 transmitting and receiving data packets over the interface according to
5 a packet-switched protocol.

1 16. The method of claim 15, wherein the transmitting and receiving
2 comprise transmitting and receiving Internet Protocol data packets.

1 ~~17.~~ The method of claim 15, wherein the transmitting and receiving
2 comprise transmitting and receiving over a Gb interface.

1 ~~18.~~ ¹² A serving General Packet Radio Service support node for use in a
2 mobile communications system having cell sites, comprising:
3 an interface ¹⁴ to one or more networks coupled to the cell sites, the
4 interface comprising a packet-switched element to manage communication of packet-
5 switched data packets to the cell sites.

1 ~~19.~~ The serving General Packet Radio Service support node of claim 18,
2 wherein the packet-switched element comprises an Internet Protocol element.

1 ~~20.~~ The serving General Packet Radio Service support node of claim 18,
2 further comprising a User Datagram Protocol transport component to manage
3 connections over the network.

1 ~~21.~~ The serving General Packet Radio Service support node of claim 18,
2 further comprising a network services layer to transport data units containing
3 signaling and bearer traffic over the network.

1 ~~22.~~ ¹⁵ An article comprising one or more storage media containing
2 instructions that when executed cause a base station system to:
3 transmit a provisioning message containing one or more addresses
4 associated with the base station system to a system controller to enable
5 communication over a packet-switched network.

1 23. The article of claim 22, wherein the instructions when executed cause
2 the base station system to transmit the provisioning message containing one or more
3 Internet Protocol addresses.

1 24. The article of claim 22, wherein the instructions when executed cause
2 the base station system to receive an acknowledgment of the provisioning message
3 from the system controller.

1 25 The article of claim 22, wherein the instructions when executed cause
2 the base station system to transmit a message to unblock one or more of the addresses.

1 26 The article of claim 22, wherein the instructions when executed cause
2 the base station system to transmit a message to block one or more of the addresses.

1 Fig. 14 (27.) A data signal embodied in a carrier wave and containing instructions
2 for control in a mobile communications system having a mobile station and a plurality
3 of cell entities, the instructions when executed causing a controller to:
4 send a message to a router, the message specifying a multicast address;
5 and
6 multicast the message from the router to the plurality of cell entities.

1 28. The data signal of claim 27, wherein the instructions when executed
2 cause the controller to perform Internet Protocol multicasting.

1 29. The data signal of claim 27, wherein the instructions when executed
2 cause the controller to send the message to a router in a Gb network.

1 30. The data signal of claim 27, wherein the instructions when executed
2 cause the controller to send a page message.

1 31. The data signal of claim 30, wherein the instructions when executed
2 cause the controller to send the page message to alert a mobile station that is in a
3 General Packet Radio Service STANDBY state.

1 32. The data signal of claim 27, wherein the instructions when executed
2 cause the controller to define a routing area having an associated multicast address,
3 the routing area having a plurality of cell sites.

1 33. The data signal of claim 27, wherein the instructions when executed
2 cause the controller to define a location area having an associated multicast address.

1 (34.) A node for use in a mobile communications system having a cell site
2 interface, the node comprising:

3 an interface unit adapted to receive a message having a multicast
4 address over the cell site interface; and

5 a control unit to decode the multicast address.

1 35. The node of claim 34, wherein the cell site interface comprises a Gb
2 interface.

1 (36.) A node for use in a mobile communications system having an interface
2 between a system controller and cell sites, comprising:

3 a unit adapted to transmit a message having a multicast address onto
4 the cell site interface, the multicast address associated with a predefined group of cell
5 sites.

1 37. The node of claim 36, wherein the multicast address comprises an
2 Internet Protocol multicast address.

1 38. The node of claim 36, wherein the interface comprises a Gb interface.

1 39. The node of claim 36, wherein the message comprises a page message.

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